

REMARKS

Claims 1-20 are pending in the Application. Pursuant to the Restriction Requirement, claims 7-17 have been withdrawn from consideration. Thus, claims 1-6 and 18-20 are the only claims that have been examined in the current Office Action. Claims 1-6 and 18-20 have been rejected under 35 U.S.C. § 112, second paragraph, claims 1-2, 4-5, and 18-19 have been rejected under 35 U.S.C. § 102, and claims 1-6, 19 and 20 have been rejected under 35 U.S.C. § 103(a).

Rejections under 35 U.S.C. § 112, second paragraph

Claims 1-6 and 18-20 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. In particular, the Examiner maintains that the phrase, “type of sheet roll” is indefinite, since the term “type” is not defined. Therefore, the Examiner interprets the term “type” to include whether a sheet roll is full or empty, i.e. one type of a roll is a full roll, and another type of a roll is an empty roll. The Examiner uses this broad interpretation in the prior art rejections set forth in the Office Action.

In light of the above, Applicant has amended claim 1 to recite that the type of a sheet roll includes at least one of a material of said sheet roll, a thickness of the material, a width of the material, a quantity of winding of a the material forming the sheet roll and a sensitivity of the material (i.e. as disclosed in the non-limiting embodiment on pgs. 11 and 12 of the specification). Applicant submits that such limitations more clearly define the term “type”, as well as remove

any potential indefiniteness. Applicant has made similar amendments to independent claims 18 and 19.

During a telephonic interview with the Examiner on February 2, 2004, the Examiner indicated that such amendments appear to clarify the term “type”. Accordingly, Applicant respectfully requests the Examiner to withdraw the rejections.

In addition, the Examiner further indicated that he would reconsider the prior art rejections in view of the amendments to claims 1, 18 and 19.

Rejections under 35 U.S.C. § 102

1. Claims 1, 2, 4 and 5 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,984,049 to Lammers (“Lammers”). As noted on page 3 of the present Office Action, the Examiner maintains the rejections as set forth in the December 4, 2002 Office Action, and the May 15, 2003 Office Action.

A. Claim 1

Applicant submits that claim 1 is patentable over the cited reference. For example, claim 1 recites that a target disposed in a hollow portion of a sheet roll, is configured to provide information to identify the type of sheet roll, where the type of sheet roll includes at least one of a material of the sheet roll, a thickness of the material, a width of said material, a quantity of winding of a the material forming the sheet roll and a sensitivity of the material.

The Examiner maintains that the acoustical bellows device 5 of Lammers discloses the claimed target (Fig. 2). However, the acoustical bellows device 5 forms part of a signal generating means, which is used to generate audio signals or music (i.e. col. 3, lines 31-37 and col. 3, line 66 to col. 4, line 5). Applicant submits that the generation of audio signals or music fails to teach or disclose the identification of a type of sheet roll as recited in claim 1.

Based on the foregoing, it appears that the Examiner has not given patentable weight to the claim limitation of the target being configured to provide information to identify the type of sheet roll. However, the feature of providing information to identify a type of sheet roll is a functional limitation that describes the function of the target, and therefore, Applicant submits the feature must be given patentable weight. For example, in the non-limiting embodiments disclosed on page 12 of the present application, a position, color or material of a target may be changed according to a type of sheet roll.

As is clearly set forth in MPEP §2173.05(g), there is nothing inherently wrong with defining some part of an invention in functional terms. “A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used.” See MPEP §2173.05(g) (Emphasis added). Accordingly, Applicant submits that Lammers fails to teach or suggest that bellows device 5 is configured to identify a type of sheet roll, as set forth in claim 1.

Further, contrary to the Examiner’s assertions on pg. 17 of the Office Action, the acoustical bellows device 5 does not disclose a disk-shaped target. Rather, as stated in the reference, the acoustical bellows is accordian-shaped or wave shaped (col. 3, lines 20-22).

In light of the above, Applicant submits that claim 1 is patentable over the cited reference, and respectfully requests the Examiner to reconsider and withdraw the rejection.

B. Claims 2 and 4

Since claims 2 and 4 are dependent upon claim 1, Applicant submits that such claims are patentable at least by virtue of their dependency.

C. Claim 5

Since claim 5 is dependent upon claim 1, Applicant submits that such claim is patentable at least by virtue of its dependency.

In addition, since the signal generating means of Lammers is used to generate audio signals or music, it appears that a “type” of sheet roll, as recited in claim 1, is not determined based on any position in which the signal generating means is located. For similar reasons as presented above, Applicant submits that the functional limitation of the predetermined positions must be given patentable weight.

Accordingly, Applicant submits that claim 5 is patentable over the cited reference, and respectfully requests the Examiner to reconsider and withdraw the rejection.

2. Claims 1, 2, 4 and 5 have been further rejected under 35 U.S.C. § 102(b) as being anticipated over U.S. Patent No. 4,620,184 to Nedstedt ("Nedstedt"). As noted on page 3 of the present Office Action, the Examiner maintains the rejections as set forth in the December 4, 2002 Office Action, and the May 15, 2003 Office Action.

A. Claim 1

Applicant submits that claim 1 is patentable over the cited reference. For example, claim 1 recites that a target disposed in a hollow portion of a sheet roll, is configured to provide information to identify the type of sheet roll, where the type of sheet roll includes at least one of a material of the sheet roll, a thickness of the material, a width of the material, a quantity of winding of a the material forming the sheet roll and a sensitivity of the material.

The Examiner maintains that the field generating element 11 of Nedstedt discloses the claimed target (Fig. 1). However, the field generating element 11 cooperates with the sensing device 8 to determine when a web roll 3 becomes empty (Abstract; col. 2, lines 58-60). The sensing device 8 is acted upon by the field generating element 11 when the sensing device 8 is at a certain distance from the field generating element 11 (col. 2, line 66-col. 3, line 2). As soon as sensing device 8 gets close enough to signal generating element 11, the field strength is great enough to act upon sensing element 8, and the circuit to unit 10 is closed (col. 3, lines 21-25).

Based on the foregoing, it is determined whether roll 3 is empty or not. Applicant submits that the determination of whether roll 3 is empty or not fails to teach or disclose at least one of a material of the roll 3, a thickness of the material, a width of the material, a quantity of winding of a the material forming the sheet roll and a sensitivity of the material.

It appears that the Examiner has not given patentable weight to the claim limitation of the target being configured to provide information to identify the type of sheet roll. However, as noted previously in Applicant's comments regarding the Lammers reference, MPEP §2173.05(g) states that there is nothing inherently wrong with defining some part of an invention in functional terms. "A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used." See MPEP §2173.05(g) (Emphasis added). Accordingly, Applicant submits that Nedstedt fails to teach or suggest the features of claim 1.

In light of the above, Applicant respectfully requests the Examiner to reconsider and withdraw the rejection of claim 1.

B. Claims 2 and 4

Since claims 2 and 4 are dependent upon claim 1, Applicant submits that such claims are patentable over the cited reference at least by virtue of their dependency.

C. Claim 5

Since claim 5 is dependent upon claim 1, Applicant submits that such claim is patentable over the cited reference at least by virtue of its dependency.

In addition, the Examiner maintains that Nedstedt inherently discloses a plurality of predetermined positions. However, even if Applicant assumes *arguendo* that Nedstedt discloses

positions other than the center position, the other positions would not discriminate the type of sheet roll (i.e. a material of the sheet roll, a thickness of the material, a width of the material, a quantity of winding of the material forming the sheet roll, and a sensitivity of the material) based on which one of the predetermined positions the field-generating element 11 is located, as required by claim 5. For example, as discussed above, the field-generating element 11 and sensing device 8 are only disclosed as determining whether a web roll is empty or full (Abstract of Nedstedt).

Further, it appears that the Examiner has not given patentable weight to the function of the predetermined positions. However, similar to Applicant's comments above regarding the Lammers reference, MPEP §2173.05(g) states that there is nothing inherently wrong with defining some part of an invention in functional terms. "A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used." See MPEP §2173.05(g) (Emphasis added).

Accordingly, Applicant submits that claim 5 is patentable over the cited reference, and respectfully requests the Examiner to reconsider and withdraw the rejection.

3. Claim 18 has been rejected under 35 U.S.C. § 102(b) as being anticipated by Lammers.

Applicant submits that claim 18 is patentable over the cited reference. For example, claim 18 recites a means for providing information so as to identify the type of a sheet roll, where the type of sheet roll includes at least one of a material of the sheet roll, a thickness of the material, a width of the material, a quantity of winding of the material forming the sheet roll, and a sensitivity of the material.

The Examiner maintains that the acoustical bellows device 5 of Lammers discloses the claimed means (Fig. 2). However, claim 18 recites a “means for” providing information to identify a type of sheet roll. In accordance with 35 U.S.C. § 112, sixth paragraph, the Examiner must show that a prior art structure performs the identical function set forth within the claims. For example, MPEP §2184 specifically states that “unless an element performs the identical function specified in the claim, it cannot be an equivalent for the purposes of 35 U.S.C. § 112, sixth paragraph.” Accordingly, since the acoustical bellows device 5 generates audio signals (i.e. col. 3, lines 32-37), rather than provide information to identify the type of roll 1, as set forth in claim 18, Applicant submits that claim 18 is patentable over the cited reference.

Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection.

4. Claims 18 and 19 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Nedstedt.

A. Claim 18

Applicant submits that claim 18 is patentable over the cited reference. For example, claim 18 recites a means for providing information so as to identify the type of a sheet roll, where the type of sheet roll includes at least one of a material of the sheet roll, a thickness of the material, a width of the material, a quantity of winding of the material forming the sheet roll, and a sensitivity of the material.

The Examiner maintains that the field-generating element 11 of Nedstedt discloses the claimed means (Fig. 2). However, claim 18 recites a “means for” providing information to identify a type of sheet roll. In accordance with 35 U.S.C. § 112, sixth paragraph, the Examiner must show that a prior art structure performs the identical function set forth within the claims. For example, MPEP §2184 specifically states that “unless an element performs the identical function specified in the claim, it cannot be an equivalent for the purposes of 35 U.S.C. § 112, sixth paragraph.” Accordingly, since the field-generating element 11 helps to determine a consumption status of a roll 3 (i.e. col. 1, lines 8-10), rather than provide information to identify at least one of a type of material of the sheet roll, a thickness of the material, a width of the material, a quantity of winding of the material forming the sheet roll, and a sensitivity of the material, as set forth in claim 18, Applicant submits that claim 18 is patentable.

Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection.

B. Claim 19

Applicant submits that claim 19 is patentable over the cited reference. For example, claim 19 recites that a target blocks an entire diameter of a hollow portion of a sheet rolled in a tubular manner.

The Examiner maintains that field-generating element 11 blocks an entire diameter of a hollow portion of bobbin 5 of Nedstedt. However, Nedstedt discloses that field-generating element 11 may be directly connected to the inside of bobbin 5, or may be supported by a mounting device located in a roll center (col. 2, lines 59-62). Further, as shown in Figs. 1 and 2, the field-generating element 11 is concentric with the bobbin 5 (col. 2, lines 64-65). There is a gap between the field-generating element 11 and the axle 4 (Figs. 1 and 2). Accordingly, Applicant submits that there is no teaching or disclosure that field-generating element 11 blocks an entire diameter of the hollow portion.

Claim 19 further recites that a type of the sheet roll includes at least one of a material of the sheet roll, a thickness of the material, a width of the material, a quantity of winding of the material forming the sheet roll, and a sensitivity of the material. The Examiner maintains that field-generating element 11 discloses whether roll 3 is full or empty. However, for similar reasons as presented above in the rejection of claim 1 in view of the Nedstedt reference, Applicant submits that Nedstedt fails to teach or suggest that the field-generating element 11 discloses a type of sheet roll, as recited in the claim.

In light of the above, Applicant submits that claim 19 is patentable over the cited reference, and respectfully requests the Examiner to reconsider and withdraw the rejection.

5. Claims 1-2, 4-5 and 18 have been rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,334,587 to Roder.

A. Claim 1

Applicant submits that claim 1 is patentable over the cited reference. For example, claim 1 recites a target disposed in a hollow portion of a sheet roll. The target is configured to provide information to identify the type of sheet roll, where the type of sheet roll includes at least one of a material of the sheet roll, a thickness of the material, a width of the material, a quantity of winding of the material forming the sheet roll, and a sensitivity of the material.

The Examiner maintains that Roder discloses the above features. In particular, the Examiner maintains that holder 7 and code carrier 12 disclose the claimed target (Fig. 2). However, as disclosed in Roder, recording/reading heads 27, 28 and 29 are used to record/read data from code carrier 12 (col. 2, lines 55-59). The recording/reading heads 27, 28, 29 are disposed at different positions along a conveyance path for moving paper web transport carriages (col. 2, lines 59-62). For example, recording/reading head 27 is placed near a storage facility, such that when a code carrier passes by recording/reading head 27, data indicating that a spare web roll 1 has moved out of the storage facility is written into the code carrier (col. 2, lines 59-63 and col. 3, lines 16-26). The reference discloses that recording/reading head 28 is located in a vicinity of a preparation station and recording/reading head 29 is located in a vicinity of a roll changer (col. 2, lines 64-67). Therefore, it appears that the code carriers (i.e. carrier 12) are used to determine a location of each web roll, rather than a type of web roll.

On the other hand, Roder discloses that data in the code carriers can include “particularities” of the paper on the web roll (col. 3, lines 28-31). However, Applicant submits that the vague reference to “particularities” fails to teach or disclose that the data includes a material, width, thickness, quantity of winding, and sensitivity of the material, as specifically recited in claim 1.

Accordingly, Applicant submits that claim 1 is patentable over the cited reference and respectfully requests the Examiner to reconsider and withdraw the rejection.

B. Claims 2 and 4

Since claims 2 and 4 are dependent upon claim 1, Applicant submits that such claims are patentable at least by virtue of their dependency.

C. Claim 5

Since claim 5 is dependent upon claim 1, Applicant submits that such claim is patentable at least by virtue of its dependency.

In addition, claim 5 recites that a type of the sheet roll is discriminated by determining in which of a plurality of predetermined positions the target is located. Roder fails to disclose a plurality of predetermined positions, such that a type of sheet roll is determined based on which predetermined position the alleged target 12 is located.

On page 8 of the Office Action, the Examiner maintains that the above limitation is an intended use of the target, and is therefore given little patentable weight. However, the feature of determining a type of sheet roll based on a predetermined position of a target is a functional limitation that describes the function of the plurality of predetermined positions, and therefore, must be given patentable weight.

As noted previously, MPEP §2173.05(g) states that there is nothing inherently wrong with defining some part of an invention in functional terms. “A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used.” See MPEP §2173.05(g) (Emphasis added).

In light of the above, Applicant submits that claim 5 is patentable over the cited reference.

D. Claim 18

Since claim 18 contains features which are analogous to the features recited in claim 1, Applicant submits that such claim is patentable over the cited reference for at least analogous reasons as presented above.

Rejections under 35 U.S.C. § 103

1. Claims 1-6 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Nedstedt in view of U.S. Patent No. 4,852,823 to Adams et al. ("Adams"). As noted on page 3 of the present Office Action, the Examiner maintains the rejections as set forth in the December 4, 2002 Office Action and the May 15, 2003 Office Action.

A. Claim 1

Applicant submits that claim 1 is patentable over the combination of the cited references. In particular, Applicant submits that Adams fails to cure the deficient teachings of Nedstedt, as set forth above in the rejection of claim 1 under 35 U.S.C. § 102(b).

B. Claims 2-6

Since claims 2-6 are dependent upon claim 1, and Adams fails to cure the deficient teachings of Nedstedt, Applicant submits that such claims are patentable at least by virtue of their dependency.

2. Claims 3 and 6 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Roder in view of Adams. However, since claims 3 and 6 are dependent upon claim 1, and Adams fails to cure the deficient teachings of Roder, Applicant submits that such claims are patentable at least by virtue of their dependency.

3. Claims 19 and 20 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Roder.

A. Claim 19

Applicant submits that claim 19 is patentable over the cited reference. For example, claim 19 recites that a target is disposed at a predetermined position, and that target blocks an entire diameter of the hollow portion at the predetermined position.

The Examiner acknowledges that Roder fails to teach a target which blocks an entire diameter of a hollow portion of paper web 1 (pg. 11 of the Office Action). However, the Examiner maintains that if the holder 7 contained six points, it would block three entire diameters of the hollow portion of paper web 1. Applicant is uncertain how the Examiner maintains that six points on holder 7 would block three entire diameters. For example, even if holder 7 contained six points, the portions between each point would provide a gap having no portion blocking the diameter. Thus, a holder with six points would not block an entire diameter, as required by claim 19.

Further, for similar reasons as presented above in Applicant's comments regarding claim 1, Applicant submits that holder 7 (and code carrier 12) fail to disclose the claimed target, which is configured to identify the type of sheet roll.

Accordingly, Applicant submits that claim 19 is patentable over the cited reference, and respectfully requests the Examiner to reconsider and withdraw the rejection.

B. Claim 20

Since claim 20 is dependent upon claim 1, Applicant submits that such claim is patentable at least by virtue of its dependency.

4. Claim 20 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Nedstedt alone or in combination with Adams. However, since claim 20 is dependent upon claim 1, and Adams fails to cure the deficient teachings of Nedstedt, Applicant submits that such claim is patentable over the cited reference.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

23373

CUSTOMER NUMBER

Respectfully submitted,



Allison M. Tulino
Registration No. 48,294
Date: February 6, 2004